

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Docket No: Q62558

Takao MORII

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Application No. 09/853,674 :

Group Art Unit: 1733

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For RADIAL TIRE

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir,

I, Hideyuki Chiashi, hereby declare and state:

I am a citizen of Japan;

I graduated from Hokkaido University, Faculty of Engineering, with a Bachelor's Degree in Material Engineering in March 2001;

I have been employed by Bridgestone Co., Ltd. since 2001, and since that time I have been engaged in the development of tire steel cord materials and tire compounds;

In order to demonstrate the unexpected superiority achieved by the present invention,

the following experiments (example 11, example 12, comparative example 3 and comparative example 4) were newly carried out under my supervision and control;

In example 11, example 12, comparative example 3 and comparative example 4, the relationship between the interval between bundles (δG) and "separation length" which is described below was analyzed. "Separation length" in the aforementioned examples and comparative examples represents the length of crack generated after a test tire (185/70R14) has been subjected to a cleat-drum test using a cleat drum (RL71Z), in which test the test tire is pushed against a rotating drum having a cleat provided thereon for a predetermined time.

It is generally considered that a tire of which "separation length" is 8 mm or less after the cleat-drum test satisfies the requirements set by the market, while a tire of which "separation length" exceeds 8 mm after the cleat-drum test does not. Thus, marketability of a tire can be determined on the basis of the "separation length" thereof. Further, as the "separation length" is changed in accordance with the interval between bundles (δG), it is possible to analyze the relationship between δG and marketability of tire by analyzing the relationship between δG and the "separation length".

The results of example 11, example 12, comparative example 3 and comparative example 4 are summarized in Table 3 below.

Table 3

| Item | Comp. Ex. 3 | Ex. 11 | Ex. 12 | Com. Ex. 4 |
|--|----------------|---------------|---------------|----------------|
| Structure of Reinforcing Material | 2-wire bundle | 3-wire bundle | 9-wire bundle | 10-wire bundle |
| Wire Diameter (mm) of Metal Wires | 0.21 | 0.21 | 0.21 | 0.21 |
| Tensile Strength (MPa) of Metal Wires | 3626 | 3626 | 3626 | 3626 |
| Carbon Content (% by weight) | 0.8 | 0.8 | 0.8 | 0.8 |
| Coating G_1 | 1.4 | 1.4 | 1.4 | 1.4 |
| Gage (mm) G_2 | 0.38 | 0.38 | 0.38 | 0.38 |
| Interval Between Bundles δG (mm) | 0.22 | 0.32 | 0.96 | 1.07 |
| Indicated Denier | PET | PET | PET | PET |
| Structure of Carcass Cord | 1500d/2 | 1500d/2 | 1500d/2 | 1500d/2 |
| Separation length (mm) | 8.5 | 7.5 | 7.5 | 8.5 |
| Marketability | No | Yes | Yes | No |

From the results shown in Table 3, it is understood that:

- when δG is within the range defined by present claim 2, i.e., $0.25 \text{ mm} \leq \delta G \leq 1.00 \text{ mm}$ (examples 11 and 12), the "separation length" is well below 8 mm and thus marketability of tire is assured;
- in contrast, when δG is outside the range defined by present claim 2, i.e., $0.25 \text{ mm} \leq \delta G \leq 1.00 \text{ mm}$ (comparative examples 3 and 4), the "separation length" exceeds 8 mm and marketability of tire is not assured;
- in other words, the feature that $0.25 \text{ mm} \leq \delta G \leq 1.00 \text{ mm}$ brings about a critical (i.e., unexpected and superior) effect on the quality of tire.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these

statements were made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE: Aug. 19, 2004

Hideyuki Chiashi

Hideyuki Chiashi